

WHAT IS CLAIMED IS:

1. A method for manufacturing an electronic component module having a semiconductor bear chip packaged on a wiring  
5 board, said method including:

preparing said wiring board including a wiring pattern,  
a thermosetting resin film covering an electrode area on said  
wiring pattern and having insulating particles dispersed and  
included, and a thermoplastic resin film covering said  
10 thermosetting resin film;

pressing a bump of the semiconductor bear chip onto the  
thermoplastic resin film in a melted state where said  
thermoplastic resin film is heated and softened, while applying  
an ultrasonic wave, so that the melted thermoplastic resin film  
15 is shoved away by said bump of the semiconductor bear chip and  
that said bump reaches a surface of said thermosetting resin  
film;

pressing said bump against said thermosetting resin film  
by continually applying ultrasonic wave to said bump so that  
20 said insulating particles are separated from within the  
thermosetting resin film, the thermosetting resin film is shaved  
away by said bump, and said bump makes contact with said electrode  
area;

ultrasonically bonding said bump and said electrode area  
25 by continually applying ultrasonic wave in a state where said

bump and said electrode area are contacted; and

bonding a semiconductor bear chip main body on said wiring board by cooling and solidifying said melted thermoplastic resin.

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2. The method for manufacturing the electronic component module according to claim 1, wherein silicone oxide or aluminum oxide is employed as a material of insulating particles.

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3. The method for manufacturing the electronic component module according to claim 1, wherein tetrafluoroethylene is employed as a material of insulating particles.

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4. The method for manufacturing the electronic component module according to claim 1, wherein the content of insulating particles in the thermosetting resin film is 10 to 30wt% in the 100wt% of resin.

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5. The method for manufacturing the electronic component module according to claim 1, wherein the diameters of insulating particles are 70% or more of the thickness of the thermosetting resin film.

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6. A wiring board for flip chip connecting, comprising:

a wiring pattern;

a thermosetting resin film covering an electrode area  
5 on said wiring pattern and having insulating particles dispersed  
and included; and

a thermoplastic resin film covering said thermosetting  
resin film.

10 7. The flip chip connecting wiring board according  
to claim 6, wherein silicone oxide or aluminum oxide is employed  
as a material of said insulating particles.

15 8. The flip chip connecting wiring board according  
to claim 6, wherein tetrafluoroethylene is employed as a material  
of said insulating particles.

9. The flip chip connecting wiring board according  
to claim 6, wherein the content of said insulating particles  
20 in the thermosetting resin film is 10 to 30%wt in the 100wt%  
of resin.

10. The flip chip connecting wiring board according  
to claim 6, wherein the diameters of insulating particles are  
25 70% or more of the thickness of the thermosetting resin film.

11. A method of manufacturing a wiring board for flip chip connecting, comprising the steps of:

preparing a base member of a film-like wiring board;

5 laminating a metal foil on said base member; and

forming an etching pattern required wiring pattern on a surface of said metal foil, wherein when a wiring pattern is formed through an etching process, a thermosetting resin having

insulating particles dispersed and included is employed as an

10 etching mask material, and said thermosetting resin is further covered with a thermoplastic resin.

12. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein silicone

15 oxide or aluminum oxide is employed as a material of said insulating particles.

13. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein

20 tetrafluoroethylene is employed as a material of said insulating particles.

14. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein the

25 content of insulating particles in the thermosetting resin film

is 10 to 30%wt in the 100wt% of resin.

15. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein the  
5 diameters of said insulating particles are 70% or more of the thickness of the thermosetting resin film.

16. A method for manufacturing an electromagnetically  
readable data carrier including integrally a data carrier main  
10 body and an electric component module, said data carrier main body holding a conductor pattern composing an antenna on a film, said electric component module, in which a semiconductor bear chip having a transmitting/receiving circuit and a memory, being  
15 packaged on a wiring pattern of said film, sheet or thin plate-like wiring board, said method having manufacturing method for said electric component module comprising the steps of:

preparing said film, sheet or thin plate-like wiring board having said wiring pattern, a thermosetting resin film covering  
20 an electrode area on said wiring pattern and having insulating particles dispersed and included and a thermoplastic resin film covering said thermosetting resin film;

pressing a bump of the semiconductor bear chip onto the thermoplastic resin film in a melted state where said  
25 thermoplastic resin film is heated and softened, while applying

a ultrasonic wave, so that the melted thermoplastic resin film is shoved away by said bump of the semiconductor bear chip and that said bump reaches a surface of said thermosetting resin film;

5            pressing said bump against said thermosetting resin film by continually applying ultrasonic wave to said bump so that said insulating particles are separated from within the thermosetting resin film; the thermosetting resin film is shaved away by said bump, and said bump makes contact with said electrode

10    area;

          ultrasonically bonding said bump and said electrode area by continually applying ultrasonic wave in a state where said bump and said electrode area are contacted; and

          bonding a semiconductor bear chip main body on said wiring  
15    board by cooling and solidifying said melted thermoplastic resin.

          17.    The        method        for        manufacturing        an  
electromagnetically readable data carrier according to claim  
20    16, wherein said film-like resin substrate is used for a data  
carrier main body.

          18.    The        method        for        manufacturing        the  
electromagnetically readable data carrier according to claim  
25    16, wherein silicone oxide or aluminum oxide is employed as

a material of insulating particles.

19. The method for manufacturing the  
electromagnetically readable data carrier according to claim  
5 16, wherein tetrafluoroethylene is employed as a material of  
insulating particles.

20. The method for manufacturing the  
electromagnetically readable data carrier according to claim  
10 16, wherein the content of insulating particles in the  
thermosetting resin film is 10 to 30%wt in the 100wt% of resin.

21. The method for manufacturing the  
electromagnetically readable data carrier according to claim  
15 16, wherein the diameters of insulating particles are 70% or  
more of the thickness of the thermosetting resin film.

22. A flip chip connecting wiring board comprising:  
a wiring pattern;  
20 a first plastic resin film covering an electrode area  
on said wiring pattern and having insulating particles dispersed  
and included; and  
a second thermoplastic resin film covering said first  
thermoplastic resin film;  
25 wherein the resoftening temperature of said first thermoplastic

resin film is fully higher than that of said second thermoplastic resin film.

23. The method for manufacturing an electronic  
5 component module according to claim 1, wherein said insulating particles are uniformly dispersed within said thermosetting resin film.

24. The wiring board for flip chip connecting according  
10 to claim 6, wherein said insulating particles are uniformly dispersed within said thermosetting resin film.

25. The method of manufacturing a wiring board for flip  
chip connecting according to claim 11, wherein said insulating  
15 particles are uniformly dispersed within said thermosetting resin film.

26. The wiring board for flip chip connecting according  
to claim 15, wherein said insulating particles are uniformly  
20 dispersed within said thermosetting resin film.

27. The wiring board for flip chip connecting according  
to claim 22, wherein said insulating particles are uniformly  
dispersed within said thermosetting resin film.